3GPP TSG-RAN WG4 Meeting # 96-e R4-2012741

Electronic Meeting, 17 – 28 August, 2020

**Agenda item:** 7.17

**Source:** Moderator (Huawei)

**Title:** Email discussion summary for [96e][311] OTA\_BS\_testing

**Document for:** Information

# Introduction

This is the email discussion summary for [96e][311] OTA\_BS\_testing on OTA BS testing WI, with the following topics covered:

* Topic 1: TR 37.941 cleanup
* Topic 2: BS measurement types
* Topic 3: MU / TT values: derivation and tables
* Topic 4: Annexes
* Topic 5: Others

Conclusion of the first round should conclude if the submitted CRs can be agreed or need to be revised.

List of candidate target of email discussion for 2nd round

* 2nd round:
	+ Conclude on the CR revisions.
	+ Collect feedback on the potential WI extension.

# Topic #1: TR 37.941 cleanup

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2011257 | Huawei | CR to TR 37.941: editorial cleanup, Rel-15CR removing [] and other editorial corrections. It is expected that this TP may be revised during the meeting to incorporate more corrections.This CR will require alignment with new inputs from ROHDE & SCHWARZ on PWS MU contributors in R4-2011215. |
| R4-2011258 | Huawei | CR to TR 37.941: editorial cleanup, Rel-16Category A CR, based on R4-2011257 |

## Open issues summary

### Sub-topic 1-1

### Sub-topic 1-2

## Companies views’ collection for 1st round

### Open issues

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2011257/58 | R&S: Agree with the comment from rapporteur that alignment is required between this CR and R4-2011215. Just for clarity, we propose to remove any changes related to PWS from this CR and handle all of them in a revised version for R4-2011215. From technical point of view, we don’t think we can remove the [..] for f > 4.2GHz since no technical submission has provided justification for the values on those frequencies, but we understand the need to close the work. Thus, we are fine to remove the pending [..] for PWS as editorial change.Besides that, we detected a general typo all over the document regarding references to MU and TT clauses (clause 16 and 17 respectively, where it should say clause 17 and 18). See 9.2.7 and 9.2.8 for examples. |
| Huawei: Revision of R4-2011257 is needed to align with new inputs from ROHDE & SCHWARZ on PWS MU contributors in R4-2011215.In case the WI is extended (based on Keysight request) then we can keep the outstanding [] this meeting and remove then before closure of the WI next meeting.  |

## Summary for 1st round

### Open issues

|  |  |
| --- | --- |
|  | **Open issue/Status summary**  |
| **Sub-topic#1-1** | **WI timeline****Issue 1-1**: based on the feedabck from one company, the WI is proposed to be extended. This proposal is motivated by the need to futher analyse the MU contributors and calculations. WI extension is TSG RAN level decission, but it is brought up for discussion in RAN4 beforehand to check if there is any other view from intersed companies. Possible options:* Option 1: extend the WI till Dec 2020
* Option 2: keep the original WI timeline

Recommendations on WF Moderator: Option 1 is suggested, as this (Performance oriented WI) does not impact Rel-16 timeline. More feedback from companies can be collected during the 2nd round. |

### CRs/TPs

|  |  |
| --- | --- |
| **CR number** | **CRs/TPs Status update recommendation**  |
| R4-2011257 | Revised to R4-2012698 |
| R4-2011258 | Return to (Cat A CR) |
|  |  |
|  |  |

## Discussion on 2nd round (if applicable)

Feedback in Issue 1-1 is expected to be collected, if any.

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  | Sub-topic 1-1: WI timeline |
| Ericsson | The MU contributors and calculations were the subject of significant work for rel-15 and were agreed there. We do not think that review and revision of the MU is within the scope of this WI and the WI should therefore not be extended. If there is a desire to re-open the MU evaluation, this should be motivated and proposed as a separate WI. |
| Huawei | As understood, the motivation from TE vendor to request the WI revision is to check for MU contributor’s consistency among test methods, as well as selected MU contributor values cross-check for the range above 4.2GHz. if there is an error identified – it shall be corrected. Please note, that the MU cross-check activity (based on Excel spreadsheets) was part of this WI since its beginning. As a rapporteur, this is seen as TR quality improvement, therefore initiative from TE vendors is highly appreciated. As already mentioned in the WID, such review process does not impacts the agreed TT values. Therefore we would be ok to extend the WI till December 2020 (Rel-16 Perf deadline) for that reason, i.e. Option 2. NOTE: potential WI extension is RAN level decision. |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2012698 | *Company A* |
| *Company B* |
| R4-2011258 | *Company A* |
| *Company B* |

## Summary on 2nd round (if applicable)

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation**  |
| R4-2012698 | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |
| R4-2011258 |  |

# Topic #2: BS measurement types

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2009970 | Ericsson | CR to TR 37.941: Clause 6 Measurement TypesUpdated CR from the previous meetings, further corrected based on offline discussion on RAN4 reflector before the meeting. |
| R4-2009972 | Ericsson | CR to TR 37.941: Clause 6 Measurement TypesCategory A CR, based on R4-2009970. |

## Open issues summary

### Sub-topic 2-1

### Sub-topic 2-2

## Companies views’ collection for 1st round

### Open issues

### CRs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2009970/72 | Nokia: It is important to note that there is already a definition for EIRP and EIS in Section 3.1. The proposed text attempts to provide another version of the definition expressed in mathematical formula. This could create multiple versions of the same definition and cause confusion because these mathematical equations are not unique and straightforward to understand without some theoretical background due to one-to-many relationship. For example, EIRP can be related to directivity/gain or radiation intensity. It is not clear why power density is selected and not the others. Section 6.2.1 is meant to be a general section which should include other directional requirements such EVM, in-channel selectivity, etc. Nokia can provide support to determine the relevant section where these equations should go and also appropriate background information from TR 37.843/842. Of course, additional time is needed for this. It is proposed to make this as a separate discussion (and CR). A suggestion for the wording in this section is as follows: “Examples of TX and RX directional requirements are EIRP and EIS, respectively”. In Section 6.3.1, the suggested changes are not clear readable. And, it seems there is duplication in some equations and text. Thus, a cleanup is desired, which can be used as a basis for further revisions. |
| Huawei: In general: This topic on measurement definitions (even though those are existing in the TS already for quite some time) is ongoing for number of meetings already, despite the offline effort to achieve consensus. It is suggested to focus on the agreeable modifications and conclude this meeting. Agree with Nokia that cleanup of the CR is required (so that MCC is not confused during implementation). Revision is needed.We are fine with the current version of section 6.1. 6.2.1: Referring to Nokia comment above, it could be modified to indicate that only examples are mentioned for EIRP and EIS. Slight modification is proposed to the Nokia text proposal above. 6.3.1: Referring to Nokia comment above, in the past meetings we were suggesting significant simplification of the theoretical part being proposed – for sake of progress we continued to observe the evolving text based on inputs from Nokia and Ericsson. Once cleaned up, we would be fine to significantly simplify the newly proposed text as the current text still seems not agreeable.  |
| Ericsson: This contribution has been revised (please find it in drafts folder) to remove “change upon change” marks used during offline discussions. Comment bubbles of this CR have also been removed used during offline discussion. In yellow highlight, Nokia’s suggested wording “Examples of TX and RX directional requirements are EIRP and EIS respectively” have been also included. |
| Moderator: for the second round, interested companies are asked to provide text revisions based on the revised and cleaned version of the CR. This topic is proposed to be concluded this meeting.  |

## Summary for 1st round

### Open issues

### CRs/TPs

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| R4-2009970 | Revised to R4-2012699 |
| R4-2009972 | Return to (Cat A CR) |

## Discussion on 2nd round (if applicable)

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2012699 | *Company A* |
| *Company B* |
| R4-2009972 | *Company A* |
| *Company B* |

## Summary on 2nd round (if applicable)

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation**  |
| R4-2012699 | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |
| R4-2009972 |  |

# Topic #3: MU / TT values: derivation and tables

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2011203 | ROHDE & SCHWARZ | Plane Wave Synthesizer – Pending MU termAnalysis of the MU term that was still pending for the frequency range up to 4.2GHz. |
| R4-2011215 | ROHDE & SCHWARZ | CR to TR 37.941: Completion of MU terms for PWS.Based on discussion in R4-2011203. |
| R4-2011231 | ROHDE & SCHWARZ | Mirror CR to TR 37.941: Completion of MU terms for PWS.Category A CR based on R4-2011215. NOTE: this Cat A CR was already uploaded (while it shouldn’t). To keep it in mind in case of R4-2011215 revision. |

## Open issues summary

### Sub-topic 3-1

### Sub-topic 3-2

## Companies views’ collection for 1st round

### Open issues

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2011215 /R4-2011231 | Moderator: Cat A CR in R4-2011231 was already uploaded (while it shouldn’t). To keep it in mind in case of R4-2011215 revision. |
| R&S: R4-2011231 was uploaded by mistake, but we will make sure to apply the required changes (if any) according to the changes agreed for R4-2011215. |
| Keysight: one typo from previous work. In Table 11.2.6.3-1 BS output pwr (in-band TRP) UID for mismatch term should be A7-6 rather C1-3 |
| Huawei: based on the Keysight comment above (to be addressed in the revision), the whole TR will be double-checked for similar mistakes – if any, then the editorial cleanup CR can be used to address those.In the commented table 11.2.6.3-1, the A7-3 as well as C1-4 is also used for two different MU contributors. This is to be double-checked as well.  |
| Huawei: PWS correction to be aligned with the cleanup CR in R4-2011257.In the commented table 11.2.6.3-1, the A7-3 as well as C1-4 is also used for two different MU contributors. This is to be double-checked as well. |
| Moderator: MU corrections to be aligned in Excel spreadsheets, as well.  |

## Summary for 1st round

### Open issues

### CRs/TPs

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| R4-2011215 | Revised to R4-2012700 |
| R4-2011231 | Revised to R4-2012701 |

## Discussion on 2nd round (if applicable)

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2012700 | *Company A* |
| *Company B* |
| R4-2012701 | *Company A* |
| *Company B* |

## Summary on 2nd round (if applicable)

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation**  |
| R4-2012700 | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |
| R4-2012701 |  |

# Topic #4: Annexes

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2011259 | Huawei | CR to TR 37.941: new Annex for Excel spreadsheets with MU derivation, Rel-15CR with new annex proposed as a placeholder for the MU calculation Excel sheets. This CR will require revision based on new inputs from ROHDE & SCHWARZ on PWS MU contributors and updated Excel sheets included in R4-2011203. |
| R4-2011260 | Huawei | CR to TR 37.941: new Annex for Excel spreadsheets with MU derivation, Rel-16Category A CR based on R4-2011259.  |

## Open issues summary

### Sub-topic 4-1

### Sub-topic 4-2

## Companies views’ collection for 1st round

### Open issues

### CRs/TPs comments collection

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| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2011259/60 | Nokia: Spreadsheets could be placed in separate files like TR 38.817-01 |
| R&S: Similar to Nokia’s comment, Excel files should not be embedded and neither have a contribution number. Another example for attached spreadsheet can be seen in TR 38.810. |
| Huawei: we are fine with the approach suggested by Nokia and R&S above. CR to be revised to incorporate updates from R&S for the PWS MU values. |

## Summary for 1st round

### Open issues

### CRs/TPs

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| R4-2011259 | Revised to R4-2012702 |
| R4-2011260 | Return to (Cat A CR) |

## Discussion on 2nd round (if applicable)

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2012702 | *Company A* |
| *Company B* |
| R4-2011260 | *Company A* |
| *Company B* |

## Summary on 2nd round (if applicable)

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation**  |
| R4-2012702 | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |
| R4-2011260 |  |

# Topic #5: Others

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2009971 | Ericsson | CR to TR 37.941: Clause 6.3.3 Angular alignment in TRP measurementsUpdated CR from the previous meetings, further corrected based on offline discussion on RAN4 reflector before the meeting. |
| R4-2009973 | Ericsson | CR to TR 37.941: Clause 6.3.3 Angular alignment in TRP measurementsCategory A CR based on R4-2009971. |
| [R4-2011255](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2011255.zip) | Huawei | CR to TS 37.145-2: internal TR references corrections (wrt. TR 37.941 for OTA BS testing), Rel-15This CR is a fine-tuned version based on the agreed content of R4-2007454, which was not implemented into TS 37.145-2 due to comments received from MCC after RAN4#95-e meeting. |
| R4-2011256 | Huawei | CR to TS 37.145-2: internal TR references corrections (wrt. TR 37.941 for OTA BS testing), Rel-16Category A CR based on [R4-2011255](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2011255.zip). |

## Open issues summary

### Sub-topic 5-1

### Sub-topic 5-2

## Companies views’ collection for 1st round

### Open issues

### CRs/TPs comments collection

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| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2009971/73 | Nokia:The proposed changes are non-editorial, which should be substantiated by technical evidence. The proposed new text contains some technical flaws. Hence, it is suggested to revise the text while preserving the original meaning. |
| Huawei: this topic is unresolved for over half a year. Cleanup needed for this CR as well. Please remove old comments and use latest TR to reassure consistency. We will provide proposed resolution text in the clean version of the revision.Based on concerns above, it would be good to see the proposed modifications from Nokia. |
| Ericsson: Please find the new clean draft in the drafts folder where all comment bubbles have been removed. Our attempts have been to clarify the text as conclusion in past meeting the wording needs to be improved to help provide readers with clear understanding of the text. Our proposed text has been an attempt to interpret the original meaning, please help to provide suggested text if the text is not acceptable.  |
| Moderator: for the second round, interested companies are asked to provide text revisions based on the revised and cleaned version of the CR. This topic is proposed to be concluded this meeting. |
| [R4-2011255](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2011255.zip)/56 | Nokia: CR contains changes on changes. |
| Huawei: two different Track Change IDs were used to indicate modification in tables – this is not considered as the forbidden “changes on changes” as the final text is correct. Anyway, this can be cleaned up in the revision.  |

## Summary for 1st round

### Open issues

### CRs/TPs

|  |  |
| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation**  |
| R4-2009971 | Revised to R4-2012703 |
| R4-2009973 | Return to (Cat A CR) |
| [R4-2011255](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2011255.zip) | Revised to R4-2012704 |
| [R4-201125](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2011255.zip)6 | Return to (Cat A CR) |

## Discussion on 2nd round (if applicable)

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2012703 | *Company A* |
| *Company B* |
| R4-2009973 | *Company A* |
| *Company B* |
| R4-2012704 | *Company A* |
| *Company B* |
| [R4-201125](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2011255.zip)6 | *Company A* |
| *Company B* |

## Summary on 2nd round (if applicable)

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation**  |
| R4-2012703 | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |
| R4-2009973 |  |
| R4-2012704 |  |
| [R4-201125](http://www.3gpp.org/ftp/TSG_RAN/WG4_Radio/TSGR4_96_e/Docs/R4-2011255.zip)6 |  |